



Whalewatching operations from numerous ports along the Massachusetts coast bring over three-quarters of a million visitors to the Sanctuary each year.

*Photographer:
Regina Asmutis-Silvia, IWC*

Human Uses

Whale Watching

Historically important as a fishing ground, Stellwagen Bank is now one of the premiere whalewatching destinations in the world. Whalewatch vessel entry to the Sanctuary comes primarily from eight ports along the coast of Massachusetts Bay, but occasionally also from New Hampshire and southern Maine. Since the mid-1970s, whalewatching has become an economically and educationally significant activity in the Sanctuary. In fact, over 90% of all New England regional whalewatching effort occurs within the Sanctuary boundaries.

In 1997, the most recent data year, direct gross sales revenues in the New England region for whalewatching were estimated at around \$21 million. At least 10 million people went whalewatching in the Sanctuary between 1975 and 1993. An estimated 864,000 individuals went whalewatching there during the 1996 season alone. On an annual basis, these numbers are generally believed to have since increased.

Whalewatch companies often provide naturalist services during the trip, which expand the experience into an educational event for passengers. This service offers a promising avenue to instill a stewardship ethic in Sanctuary visitors and raise their awareness about how human activity can impact Sanctuary resources. It also provides an important means to raise the visibility of the Sanctuary among a varied and interested public. And, research indicates that whalewatch companies will realize greater marketing advantage, if they advertise that their whalewatching will be conducted within the Sanctuary.

Whalewatch vessels can contribute to research on the interaction, associations and behaviors of the whales that come to the Sanctuary to feed. The Sanctuary humpbacks may be the best and most consistently studied whales in the world due to the efforts of several local scientific research organizations, often working in conjunction with whalewatch companies. Whalewatch vessels can serve as invaluable data collection platforms for research activities on Sanctuary animals, activities that otherwise would have been greatly curtailed due to cost.

Commercial Fishing

Historically, the yield from groundfish, invertebrate, and pelagic fisheries was a singularly important commercial resource for the New England region beginning in the Colonial Period. Today, commercial fishing remains among the more important sources of revenue for the New England coastal states. Precise estimates of the fishing effort, and associated landings, applied to the Sanctuary on a seasonal and annual basis are currently not available, but continue to be a matter of significant interest.

Three hundred years ago, catches were abundant from local coastal waters and the need to venture to distant offshore banks was small. Handlines employed from small skiffs and sail craft yielded modest daily catches while weirs or traps placed at river mouths or harbors captured plentiful amounts of migratory fish. However, the country's rapid growth increased pressure to extend fishing effort to offshore locations. Subsequent advancements in vessel propulsion, from sail to steam to diesel power, increased significantly the distance off-shore that fishermen could fish, the size and types of gear they could deploy, and ultimately their fishing power and harvesting efficiency. This, coupled with introduction of the otter trawl, led to major increases in annual catch.

In the 1960s, large foreign trawlers began fishing the region for non-traditional species, such as hake, herring and squid. By the 1970s, vessels from a wide variety of countries had begun targeting more traditional local species, such as haddock. New England fisheries began to suffer biologically and economically. Because there was no effective management of fisheries outside the existing U.S. 12-mile contiguous zone, the Magnuson-Stevens Fishery Conservation and Management Act of 1976 was passed to extend U.S. management jurisdiction out to 200 nautical miles from the shoreline. This action reduced the level of foreign fishing in the Gulf of Maine, but compensatory increases in domestic fishing capacity through the 1980s and 1990s contributed to overfishing and stock collapses.

Today, a reduced but still extensive and active domestic commercial fishery continues throughout the southwestern Gulf of Maine and surrounding waters, although faced with serious problems of over-capacity and operating under a complex regulatory regime intended to rebuild fish populations. Stellwagen Bank is one of several areas receiving concentrated fishing effort, as is Jeffrey's Ledge, Cashes Ledge, Tillies Bank, Brown Bank and the more expansive Georges Bank. Fishing with mobile gear, such as trawls, together with fixed gear, such as bottom-tending gill nets and lobster pots, occurs extensively throughout the Sanctuary. Commercial operators take species from four principal categories: groundfish, pelagics, other finfish and invertebrates.

Recreational Fishing and Boating

The Sanctuary is a popular destination for recreational fishing boats, sailboats and powerboats. Recreational fishing, from party boats, charters and private boats, is regularly directed at fish from cod to bluefin tuna inside the Sanctuary. There are 65 small boat harbors and over 80 boating and yacht clubs sited along the Massachusetts coast giving access to the Sanctuary. Recreational boaters typically transit the Sanctuary going to and from Boston, coming from the Cape Cod Canal or Cape Cod Bay, and from



Fishing has been a New England tradition for centuries, and fishing vessels continue to be a common sight on Stellwagen Bank, including trawlers (top photo) and gill netters (bottom photo).

*Photographer:
(both photos) David Wiley, IWC*



Transiting the Sanctuary are a range of large cargo vessels, such as this car carrier, as well as high speed ferry service. The official shipping lanes to Boston pass directly over Stellwagen Bank.

*Photographer:
(both photos)
David Wiley, IWC*



Provincetown or Cape Ann. Recreational boaters are most numerous and often aggregate within the Sanctuary during the whalewatching season from May to September. On a calm summer day, recreational boats can number in the hundreds over Stellwagen Bank.

Commercial Shipping, Ferries and Cruise Ships

The Sanctuary area can be described as the “gateway” to maritime commerce of Massachusetts. As one of the busiest ports in the country, Boston sustains great amounts of commercial shipping traffic. Shipping lanes designated for entry and exit to and from the Port cross the Sanctuary, with vessels plying natural gas, cars from Europe and the Far East, and regional freight, for example. Ferry service crosses the Sanctuary in route to Provincetown from Boston, and ferry service between Portsmouth (NH) and Provincetown, that would cross the Sanctuary, is proposed. Such ferries operate at high speeds in excess of 30 knots. Cruise ship activity has been increasing and is heavily promoted for the Port of Boston.

Fiber Optic Cable

A fiber optic cable was laid across the northern part of the Sanctuary under federal permit in 2000. This cable provides a direct link between North America and the Republic of Ireland. The cable is designed for a life expectancy of 25 years and is buried at an average depth of approximately 1.5 meters into the seafloor. The cable was laid using a sea plow controlled from a cable ship on the surface. While an advisory to mariners has been posted to alert vessels to the cable’s position, recent research suggests the cable may be at risk of exposure and damage, where it is routed through muddy basins subjected to fish trawling or dredging. Other regional proposals exist for further fiber optic cable laying, which could have additional impacts on the Sanctuary.

Waste Disposal

The western Sanctuary boundary abuts the Massachusetts Bay Disposal Site (MBDS), which serves as a repository for material dredged from the harbors of Boston and nearby cities. Most harbors and navigation channels of New England require periodic maintenance dredging to remove sediments that accumulate over time. Because these fine-grained sediments are not suitable for use as fill or for beach nourishment, they are disposed of at several locations in Massachusetts and Cape Cod Bays.

The MBDS is one such location and has been used since the 1940s, first as a dumping area for industrial wastes, construction debris, deliberately sunken derelict vessels, and for some dredged material considered to be contaminated. Today the MBDS is approved for ocean disposal of dredged material, which must conform to the Environmental Protection Agency’s Ocean Dumping Criteria regulations.

Between 1940 and 1970, several other locations throughout Massachusetts Bay were also used for the disposal of various industrial waste products, these activities being largely unrecorded and unregulated. While no longer allowed, the disposal of low-level radioactive wastes during 1940s and 1950s was permitted at four sites within Massachusetts Bay. The most frequently used was the Industrial Waste Site located proximate to the westward edge of the Sanctuary boundary and in the general vicinity of the MBDS.

The Sanctuary's western boundary lies 12 miles seaward of the Massachusetts Water Resources Authority ocean outfall that discharges treated sewage effluent from several cities and towns, including Boston into Massachusetts Bay. This outfall discharges an average of 350 million gallons of secondary treated sewage daily. Additional capacity exists to discharge larger volumes, if needed.

A less apparent impact on the site involves vessels that legally dump graywater and head waste at sea within the boundaries of the Sanctuary. If the head waste has been treated with an authorized Marine Sanitation Device pursuant to section 312 of the Clean Water Act, its dumping is allowed under Sanctuary regulations. This practice pertains to all vessels, commercial and recreational, that use or transit the Sanctuary.

Management Functions

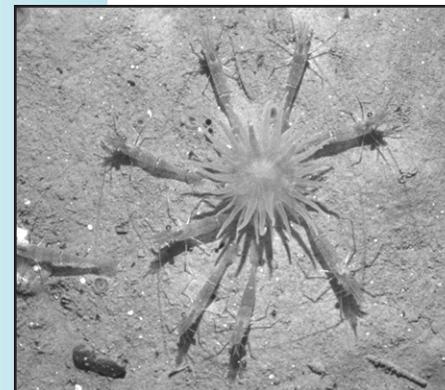
A major focus of the Sanctuary is to demonstrate and develop connections - between components of the ecosystem, between human activity and the marine environment, and between a healthy economy and a sound resource base. In developing these connections, the Sanctuary develops programs with numerous partners in four general functional areas:

Resource Protection to influence positive human behavior and activities that promote a healthy ecosystem. This program element focuses on altering or preventing human activities that may adversely affect Sanctuary resources by promulgating regulations, providing enforcement or incentives, and drawing upon education and outreach to inform the public.

Research and Monitoring to understand how the components of the ecosystem connect to each other, how the biological communities function naturally, how human activities affect the natural system, and how ecosystem changes over time relate to natural perturbations and human-induced factors. This knowledge, taken in context with pertinent socioeconomic information, is crucial to properly inform the management process.

Education and Outreach to connect people who live on land to the offshore Sanctuary by teaching about the value of a protected ocean ecosystem and how human activities can affect it. This function explains the nexus between a viable economy and healthy Sanctuary resources. It communicates what individuals, groups and businesses need to understand in order to contribute to effective stewardship.

Program Support to effectively administer project activities and initiatives that facilitate operations and meet the Sanctuary's mission. This function translates administrative capacity into productive outputs and, in addition to program budget, is reliant on organized volunteerism and "Friends" contributory support.



An ordered arrangement of shrimp find protection under the open tentacles of an anemone — a relationship photographed by geologists studying the Sanctuary seafloor.

*Photographer:
U.S. Geological Survey*